

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Currently Amended) An imaging system comprising:

a thermal imaging based system adapted for imaging infra-red radiation that is emitted by a black body, the thermal imaging based system comprising:

\_\_\_\_\_ a focal plane array (FPA) having a plurality of pixels sensitive to heat infra-red radiation; and

\_\_\_\_\_ a lens disposed between the black body and the FPA and adapted to focus heat the infra-red radiation from a scene emitted by the black body in front of the lens onto the FPA behind the lens, the plurality of pixels of the FPA having sufficient infra-red sensitivity so as to detect the infra-red radiation;

a shutter located between the ~~lens~~ thermal imaging based system and the black body scene in front of the lens, the shutter having a closed state and an open state wherein the closed state prevents the ~~heat~~ infra-red radiation from the scene emitted by the black body from entering the thermal imaging based system, and allows internal radiant flux of the thermal imaging based system to reach ~~detectors~~ the plurality of pixels of the FPA as a reference image signal, and the open state allows an open state image signal that includes both the heat infra-red radiation emitted by the black body from the scene and the internal radiant flux of the thermal imaging based system to ~~enter the system and reach detectors~~ the plurality of pixels of the FPA; and

a signal processing module operatively coupled to the FPA, and adapted to correct the open state image signal based on the reference image signal.

Claim 2. (Original) The system of claim 1 further comprising:

a shutter controller operatively coupled to the shutter, and adapted to command the shutter to its opened and closed states.

Claim 3. (Original) The system of claim 2 further comprising:

a system controller communicatively coupled to the shutter controller and the signal processing module, and adapted to control operation of the imaging system.

Claim 4. (Original) The system of claim 3 where the system controller is communicatively coupled to a network thereby enabling the imaging system to communicate with other systems also communicatively coupled to the network.

Claims 5 - 7. (Canceled)

Claim 8. (Previously Presented) The system of claim 1 wherein for any one session of imaging system operation, each of a plurality of open state image signals are corrected for pixel-to-pixel non-uniformities and offset based on the open and closed state image signals.

Claim 9. (Original) The system of claim 1 wherein the closed state image signal is periodically generated to account for changes in the imaging system.

Claim 10. (Currently Amended) A method for thermally imaging a scene, where the method is carried out by black body, comprising:

providing

\_\_\_\_\_ a thermal imaging based system configured with a front lens mounted shutter, lens, and a focal plane array (FPA), the shutter being disposed between the lens and the scene, the method comprising: the FPA having sufficient infra-red sensitivity so as to detect infra-red radiation emitted by the black body; and

a shutter, the shutter being disposed between the thermal imaging based system and the black body;

closing the front lens mounted shutter so that external scene heat emitted the infra-red radiation is blocked from entering the thermal imaging based system and being imaged through focused by the lens onto the FPA;

generating a closed state image signal that includes internal radiant flux of the thermal imaging based system;

opening the ~~front lens mounted~~ shutter, thereby allowing the ~~imaging system to receive the external scene heat emitted~~ infra-red radiation through received from the black body to enter the thermal imaging based system and be focused by the lens onto the FPA;

generating an open state image signal based on the received ~~external scene heat emitted~~ infra-red radiation and the internal radiant flux of the thermal imaging based system; and

correcting the open state image signal based on the closed state image signal.

Claim 11. (Previously Presented) The method of claim 10 wherein correcting the open state image signal includes compensating for pixel-to-pixel non-uniformities of the FPA.

Claim 12. (Previously Presented) The method of claim 10 wherein correcting the open state image signal includes compensating for offsets between the opened and closed states of the shutter.

Claim 13. (Previously Presented) The method of claim 10 wherein correcting the open state image signal includes compensating for pixel-to-pixel non-uniformities and offsets between the opened and closed states of the shutter.

Claim 14. (Canceled)

Claim 15. (Currently Amended) A method for manufacturing ~~a thermal an imaging system adapted for imaging infra-red radiation emitted by a black body~~, the method comprising:

providing a thermal imaging based system comprising a lens and a thermal imaging detector array, the lens being adapted to focus ~~heat radiating from~~ infra-red

radiation emitted by the black body a scene in front of the lens onto the thermal imaging detector array behind the lens, the thermal imaging detector array having sufficient sensitivity to detect the infra-red radiation emitted by the black body; and

providing a shutter located ~~between the lens and the scene~~ black body and the thermal imaging based system whereby the shutter, lens and detector array ~~comprise a thermal imaging based system~~, the shutter having a closed state that prevents ~~heat radiating from infra-red radiation received from the black body~~ the scene from entering the thermal imaging based system and allows the thermal imaging detector array to generate a closed state image signal comprising internal radiant flux of the thermal imaging based system, and an open state that allows the detector array to generate an open state image signal comprising both the internal radiant flux and the heat radiating from infra-red radiation received from the black body ~~the scene~~.

Claim 16. (Currently Amended) The method of claim 15 wherein the detector array comprises a plurality of pixels for detecting ~~thermal scene~~ the infra-red radiation; the method further comprising:

operatively coupling a signal processing module to the detector array, the signal processing module being adapted to correct open state image signals based on closed state image signals.

Claims 17 - 20. (Canceled)

Claim 21. (Previously Presented) The method of claim 16 further comprising:

operatively coupling a shutter controller to the shutter, the shutter controller adapted to command the shutter to its opened and closed states.

Claim 22. (Currently Amended) The method of claim 15 further comprising:

operatively coupling a system controller to ~~[[the]]~~ a shutter controller and ~~[[the]]~~ a processing module, the system controller being adapted to control operation of the imaging system.